

USSR

UDC 621.762.001

KRASOTKIN, I. S., DUBROVINSKIY, R. L., and KUZ'MENKO, A. S.

"Determination of Porosity of Powders by Mercury Porometry"

Zap. Leningr. gorn. in-ta [Writings of Leningrad Mining Institute], Vol 50, No 3, 1970, pp 148-155 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G401 by the authors)

Translation: The possibility of determining the porosity of powders by mercury porometry is established by calculation and confirmed experimentally. The formula suggested for calculation of the unfilled volume of secondary pore structure of powders allows experiments to be planned which take into account the required measurement accuracy. 3 figures; 4 tables; 3 biblio. refs.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--USE OF GAS CHROMATOGRAPHY IN THE THERMAL DESORPTION METHOD -U-
AUTHOR--(03)-KOMAROV, V.A., DUBROVINSKIY, R.L., PRIVOLNEV, A.T.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(5), 1309-10
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GAS CHROMATOGRAPHY, DESORPTION, GAS ADSORPTION, INSTRUMENT
CALIBRATION, NITROGEN, THERMAL DECOMPOSITION, PARTICLE SIZE, AMMONIUM
COMPOUND, CHROMATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1421 STEP NO--UR/0076/70/044/005/1309/1310
CIRC ACCESSION NO--AP0135095
UNCLASSIFIED

2/2 917
CIRC ACCESSION NO--AP0135095

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-U- ABSTRACT. THE NEW METHOD OF CALIBRATION OF THE CHROMATOGRAPHIC PEAK AREAS FOR THE CASES OF GAS ADSORPTION CHROMATOG. WHEN N IS THE ADSORBED GAS WAS PROPOSED. THE METHOD IS BASED ON THE QUANT. DETN. OF N WHICH IS RELEASED DURING THE THERMAL DECOMPN. OF (NH SUB4) SUB2 OR SUB2 O SUB7 PLACED IN A U TUBE IN FRONT OF THE THERMAL COND. CELL. THE DEGREE OF THERMAL DECOMPN. OF (NH SUB4) SUB2 OR SUB2 O SUB7 WAS 94 PLUS OR MINUS 2PERCENT. THE CHROMATOGRAPHIC PEAK AREA IS LINEARLY DEPENDENT ON THE AMT. OF (NH SUB4) SUB2 OR SUB2 O SUB7 IN THE U TUBE. THE DETN. OF SP. AREA OF SOLIDS BY USING THE THERMAL DESORPTION METHOD WAS SHOWN TO BE SUCCESSFUL EVEN FOR SP. AREAS OF SOLIDS LESS THAN 1 M PRIMEZ -G. FACILITY: LENINGRAD. GURN. INST., LENINGRAD, USSR.

UNCLASSIFIED

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UDC 624.074.4.04:533.6.071

DUBROVSHCHENKO, G. A., Severodonetsk

"Aerodynamic Studies of a Model of a Bus Garage"

Moscow, Stroyitel'naya Mekhanika i Raschet Soyoruzheniy, No 5, 1972,
pp 66-67.

Abstract: A circular bus garage 160 m in diameter under construction in Kiev has been designed with a roof consisting of a suspended shell. The lack of aerodynamic factors for buildings with this shape in the norms has required aerodynamic study. A geometrically similar model 53.3 cm in diameter (scale factor 1:300) was studied. The model was made together with a screen imitating the surface of the earth. Tests were performed in order to determine the distribution of pressure over the surface of the roof in a subsonic wind tunnel. The results can be used in planning of structures with roof lines of this shape.

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1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--KINETIC EFFECTS IN (PBTE) SUBL MINUS X (SNTE) SUBX COMPOSITIONS -U-
AUTHOR--(03)-YEFIMOVA, B.A., DUBROVSKAYA, I.N., FGURIYEVA, YE.A.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2) 245-51
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--HALL CONSTANT, ELECTROMOTIVE FORCE, MAGNETIC FIELD EFFECT,
MODEL, SOLID SOLUTION, ELECTRICAL CONDUCTIVITY, CONDUCTION BAND, LEAD
COMPOUND, TELLURIUM COMPOUND, SELENIUM COMPOUND, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0588 STEP NO--UR/0449/70/004/002/0245/0251
CIRC ACCESSION NO--AP0105571
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC. ACCESSION NO--AP0105571

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. N-TYPE SOLID SOLNS. OF (PBTE) SUBI MINUSX (SNTE) SUBX OF SNTE CONTENTS 5-60PERCENT WERE SUBJECTED TO HALL EFFECT AND THERMO EMF. MEASUREMENTS IN A STRONG MAGNETIC FIELD AT 85DEGREES K. THE SP. ELEC. RESISTANCE, SIGMA, THE THERMOEMF. COEFF. ALPHA, THE HALL CONST., R, AND THE TRANSVERSE NERNST ETTINGSHAUSEN EFFECT, Q, WERE MEASURED AT 80-300DEGREES K IN WEAK AND ZERO MAGNETIC FIELDS. THE DEPENDENCES OF THE EFFECTIVE MASS D. OF STATES AT THE FERMI LEVEL ON THE COMPN. OF THE SOLID SOLN., THE TEMP., AND THE CONC. WERE DETD. AT 85DEGREES K, THE CONDUCTION BAND OF THE SOLID SOLNS. OF 5 AND 25PERCENT SNTE, AS ALSO THE CONDUCTION BAND FOR PBTE, IS WELL DESCRIBED BY A KEAN MODEL, AND THE PARAMETERS OF THIS MODEL ARE DETD. AT HIGHER TEMPS., A DEPARTURE FROM THE KEAN DISPERSION LAW IN THE DIRECTION OF INCREASED DEPARTURE FROM A PARABALOID IS OBSD. WITH RISE IN TEMP. AND CONC. EXPTS. ON SOLID SOLNS. WITH HIGH CONTENTS OF SNTE REVEALED THE ANOMALOUS NATURE OF THE CONC. AND TEMP. RELATIONS FOR THE EFFECTIVE MASS D. OF STATES AT THE FERMI LEVEL, WHICH MUST BE ASSOC. WITH A CHANGE IN SIGN OF THE TEMP. COEFF. FOR THE WIDTH OF THE FORBIDDEN BAND. THE DATA OBTAINED AGREE WITH THE BAND INVERSION MODEL PROPOSED BY J. O. DIMMOCK, J. MELNGAILIS, AND A. J. STRAUSS (1966).

UNCLASSIFIED

1/2 017

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--MECHANISMS OF THE SCATTERING OF CURRENT CARRIERS IN LEAD
CHALCOGENIDES -U-

AUTHOR--(05)--RAVICH, YU.I., GURIYEVA, YE.A., DUBROVSKAYA, I.N., YEFIMOVA,
B.A., PROKOFEVA, L.V.
COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4) 917-19

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEAD SULFIDE, TELLURIUM COMPOUND, ELECTROMOTIVE FORCE, LOW
TEMPERATURE EFFECT, HALL CONSTANT, MAGNETIC FIELD EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0582

STEP NO--UR/0181/70/012/003/0917/0919

CIRC ACCESSION NO--AP0105565

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70
 CIRC ACCESSION NO--AP0105565
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANAL. WAS CARRIED OUT OF THE
 EXPTL. DATA ON MOBILITY AT 2-600DEGREES K AND THE LORENZ NO. AT SMALLER
 THAN OR EQUAL TO 77DEGREES K IN N AND P TYPE PBTE, PBSE, AND PBS WITH
 CARRIER CONCNS. OF APPROX. 10 PRIME20-CM PRIME3. CONSIDERATION OF POLAR
 SCATTERING ALLOWS ONE TO EXPLAIN ALSO THE RESULTS OF MEASUREMENTS OF
 MAGNETORESISTANCE. CALCNS. WERE MADE OF THERMAL EMF. AND THE LORENZ NO.
 IN PBTE AND PBSE OF N TYPE IN A BROAD INTERVAL OF CONCNS. AT GREATER
 THAN OR EQUAL TO 300DEGREES K; THE TEMP. DEPENDENCE OF THE HALL COEFF.
 FROM VERY LOW TEMPS. TO THE BEGINNING OF INTRINSIC COND.; THE NERNST
 ETtingshausen COEFF. AT 300DEGREES K AS A FUNCTION OF CONCNS. ALSO AT
 77DEGREES K, WHERE SCATTERING IS INELASTIC; AND FINALLY THE VARIATION OF
 THERMAL EMF. IN A STRONG MAGNETIC FIELD AT 77DEGREES K. IN ALL CASES,
 GOOD AGREEMENT WAS OBSD. BETWEEN THEORY AND EXPT. AT HIGH CONCNS. (OF
 THE ORDER OF 10 PRIME20-CM PRIME3), SCATTERING ON LONG WAVELENGTH
 ACOUSTICAL PHONONS PREVAILS. BECAUSE OF NONPARABOLICITY, THE MATRIX
 ELEMENT OF THE ACOUSTICAL SCATTERING DEPENDS ON THE ENERGY. AT CONCNS.
 OF SMALLER THAN OR EQUAL TO 10 PRIME18 MINUS 10 PRIME19-CM PRIME3, IN
 ADDN. TO ACOUSTICAL SCATTERING, AN ESSENTIAL ROLE IS PLAYED BY POLAR
 SCATTERING; AT RELATIVELY LOW TEMPS. (20-200DEGREES K), THERMOELEC. AND
 THERMOMAGNETIC EFFECTS ARE INFLUENCED BY THE COLLISIONS BETWEEN
 CARRIERS. AT EXTREMELY LOW TEMPS. (SMALLER THAN OR EQUAL TO
 100DEGREES K), SCATTERING IS CONSIDERABLE IN THE CENTRAL PART OF THE
 IMPURITY POTENTIAL.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECT OF POLAR SCATTERING ON THE MOBILITY OF CARRIERS IN LEAD
CHALCOGENIDES -U-
AUTHOR-(04)-RAVICH, YU.I., YEFIMOVA, B.A., PROKOFYEVA, L.V., DUBROVSKAYA,
I.N.
COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1), 230

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--LEAD SULFIDE, TELLURIUM COMPOUND, THERMAL EFFECT, OPTIC
PROPERTY, LIGHT SCATTERING, REACTION MECHANISM, PHOTON EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0591

STEP NO--UR/0449/70/004/001/0230/0230

CIRC ACCESSION NO--AP0105574

UNCLASSIFIED

2/2 019

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PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CALC. OF CARRIER MOBILITIES IN PBTE, PBSE, AND PBS IS PRESENTED, COVERING A WIDE RANGE OF TEMPS. AND CONCNS. (2-600DEGREES K; 10 PRIME18 MINUS 10 PRIME20-CM PRIME3). IT TAKES INTO ACCOUNT THE POLAR SCATTERING ON OPTICAL PHONONS. RESULTS ARE COMPARED WITH EXPTL. DATA. POLAR SCATTERING HAS A SUBSTANTIAL INFLUENCE ON MOBILITY AND IS CONSIDERED TO BE THE PREVAILING MECHANISM OF SCATTERING AT LOWER CONCNS. (SMALLER THAN OR EQUAL TO 10 PRIME18-CM PRIME3) AT BOTH LIQ. N AND ROOM TEMPS. THE CONTRIBUTION OF POLAR SCATTERING INCREASES FROM PBTE TO PBS. MANY EXPTL. RESULTS CAN BE BETTER UNDERSTOOD IF POLAR SCATTERING IS CONSIDERED. THIS APPLIES IN PARTICULAR TO THE TEMP. DEPENDENCE OF MOBILITY AT SMALLER THAN 77DEGREES K.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--NEUTRON DIFFRACTION STUDY OF THE STRUCTURE OF TITANIUM OXYCARBIDES
-U-
AUTHOR--(05)-ZUBKOV, V.G., MATVEYENKO, I.I., DUBROVSKAYA, L.B., BOGOMOLOV,
G.D., GELD, P.V.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK. SSSR 1970, 191(2), 323-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TITANIUM CARBIDE, NEUTRON DIFFRACTION, ELECTRIC RESISTANCE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1114 STEP NO--UR/0020/70/191/002/0323/0325
CIRC ACCESSION NO--AT0116580
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116580

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEC. RESISTANCE WAS MEASURED AT 298DEGREESK FOR A SERIES OF SAMPLES OF TIC SUBX 0 SUBY (X PLUS Y EQUALS 1), AND TIC SUB0.44 0 SUB0.57 WAS STUDIED BY NEUTRON DIFFRACTION. THE SAMPLES WERE PREPD. BY A METHOD DESCRIBED EARLIER (L. PIVOVAROV ET AL., 1967). THE CONC. DEPENDENCE OF THE RESISTANCE IS CHARACTERISTIC FOR ORDERED SYSTEMS, AND THIS WAS SUPPORTED BY THE NEUTRON DIFFRACTION DATA. THE O AND C ATOMS ARE IN AN ORDERED POSITION IN THE NONMETALLIC SUBLATTICE. FOR COMPNS. THAT ARE NOT EQUI AT., THE ATOMS OF THE EXCESS COMPONENT OCCUPY UNIQUE POSITIONS IN THE STATISTICALLY VACANT POSITIONS FOR THE DEFICIENT COMPONENT. FACILITY: INST. KHIM., SVERDLOVSK, USSR.

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↑ 100456s Preparation of large crystals of the [iron-nickel-
aluminum] alloy YuNDK24 with 0.08% carbon by annealing.
Dubrovskaya, M.E.; Livshits, B. G.; Novikov, V. Yu. (Mosk.
Inst. Stal' Splavov, Moscow, USSR). Izv. Vyssh. Ucheb.
Zaved., Chern. Met. 1969, 12(1), 132-4 (Russ). The conditions
were detd. for prep. large crystals oriented with the (100)
axis along the sample, using samples of Magnico alloy contg.
0.08% C. The largest grains (≤ 20 mm.) were obtained while
moving the sample at a rate of 0.3-0.4 mm./min. during the an-
nealing.

GLJR J

1929 1217

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UDC 632.015

DUBROVSKAYA, N. A., Head of the Laboratory of Plant Protection, Kursk Agricultural Experimental Station, and DROBYAZFINA, YE. A., Senior Laboratory Assistant

"On the Duration of Action of Organophosphorus Preparations."

Moscow, Zashchita Rasteniy, No 6, Jun 73, p 28

Translation: At present, from among organophosphorus insecticides a wide application have gained preparations based on dimethoate (Rogor, phosphamide, Bi-58 [sic], and others), whose characteristic feature is considerable duration of their action. But this characteristic is variable. It may vary depending on the species, variety and stage of development of the protected plant, on climatic conditions, and other factors.

We have studied in Kurskaya Oblast the duration of action of Bi-58, used against *Sitobion avenae* F., and other pests, on spring wheat of the Khar'kovskaya-46 variety and on barley of the Val'titskiy variety. Two field and one greenhouse experiments were staged.

In the first experiment spring wheat was treated with 0.2% solution at the stage of germination (10 May). The control plots, separated by a 5-m wide protective strip, were simultaneously sprayed with tap water. The

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DUBROVSKAYA, N. A., and BROBYAZGINA, Y. A., Zashchita Rasteniy, No 6, Jun 73,
p 28

fluid consumption was 500 l/hectare, repetition -- threefold, area of record plots -- 100 m².

To determine technical effectiveness and duration of action of the preparation, the estimates of the number of insects on the plants of a single row of the plot (32 lin. m.) were made at intervals of 2-3 days. Difference between the experiment and control were determined by the method of conjugate comparisons according to Student's criterion at 5% confidence limit.

It was found that the number of leaf pests already after 6 days, and that of Sitobion after 8 days, did not differ in the experiment from that in the control. Under field conditions this could be the result not only of the loss of toxicity but could be also caused by other factors, for example, by the increase of the mobility of insects and that of the intensity of their migrations. Additionally, the toxicity of plants was determined by the method of biological tests, viz., the pests were placed on the leaves cut from experimental and control plants and put in the humid chambers, where they were feeding for 24 hours and then were transferred to test tubes, and

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DUBROVSKAYA, N. A., and BROBYAZGINA, Y. A., Zashchita Rasteniy, No 6, Jun 73, p 28

after another 24 hours their lethality was determined.

The residual toxicity was preserved in some places up to 18 days after treatment. During this period the green mass of plants was rapidly and intensively increasing and, consequently, the concentration of the preparation in it was correspondingly decreasing, which was not without influence on the strength and duration of its action.

The second experiment differed only in the time of treatment -- 24 June. It was times to that it coincided with a period of the cessation of the growth of green mass as well as with a seasonal peak in the numbers of Sitobion avenae F. The difference in the number of Sitobion and thrips was maintained for 22 days (further observations were discontinued due to the harvesting).

The final solution of the problem was provided by the greenhouse experiment. Onto pesticide-treated potted plants of spring wheat and barley Sitobion were placed within 24 hours after treatment, and after 7, 13, 21, and 29 days, and the pots were covered with glass bell jars. The plants remained toxic for pests for 21 days, and thereafter the numbers of the latter sharply increased.

Consequently, the duration of action of the preparation may considerably exceed the limits indicated in the directions for its use.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--LEUKOPOIETINS IN ASEPTIC INFLAMMATION -U-
AUTHOR-(04)-KAKHETELIDZE, M.G., SHLYGIN, A.N., DOLGINA, Z.M., DUBROVSKAYA,
R.M.
COUNTRY OF INFO--USSR
SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,
VOL 14, NR 2, PP 79-83
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BLOOD SERUM, DOG, HORSE, HYDROCARBON, PROCESSED PLANT PRODUCT,
LEUKOPOIESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0022 STEP NO--UR/0396/70/014/002/0079/0083
CIRC ACCESSION NO--AP0105121
UNCLASSIFIED

2/2 023
CIRC ACCESSION NO--AP0105121

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES OF LEUKOPOIETIC ACTIVITY OF THE BLOOD SERUM OF DOGS AND HORSES WERE STUDIED IN ASEPTIC INFLAMMATION CAUSED BY TURPENTINE. BLOOD PROVED TO BECOME ENRICHED WITH LEUKOPOIETINS, WHICH IN INTACT ANIMALS STIMULATED DIFFERENTIATION OF STEM CELLS IN THE DIRECTION OF GRANULOCYTOPOIESIS, PROLIFERATIVE ACTIVITY OF GRANULOCYTES, THEIR MATURATION AND LIBERATION INTO THE PERIPHERAL BLOOD. ACCUMULATION OF LEUKOPOIETINS WAS PHASIC IN CHARACTER; THEIR MAXIMAL AMOUNT WAS REVEALED IN THE BLOOD 3 TO 7 DAYS AFTER ADMINISTRATION OF TURPENTINE. LEUKOPENINS DEPRESSING THE PROLIFERATIVE ACTIVITY OF GRANULOCYTES AND LIBERATION OF MATURE GRANULOCYTES FROM THE BONE MARROW INTO THE PERIPHERAL BLOOD WERE REVEALED IN SOME OF THE SERUM SAMPLES. FACILITY:
PATOFIZIOLOGICHESKAYA LABORATORIYA TSENTRAL'NOGO INSTITUTA GEMATOLOGII I PERELIVANIYA KROVI MINISTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSKVA.
FACILITY: LABORATORIYA FIZIOLOGII VSESoyUZNOGO NAUCHNO ISSLEDOVATEL'SKOGO INSTITUTA KONEVODSTVA, MOSCOW.

UNCLASSIFIED

USSR

UDC 621.165.621.74.019

TRUSOV, L. P., Candidate of Technical Sciences, ~~DUBROVSKAYA, Ye. F.~~, Candidate of Technical Sciences and ZAKHAROVA, L. N., Engineer. (Central Scientific Research Institute of Technology and Machinery Manufacture)

"Metal Properties of Turbine Cast Components From 15Kh1M1F-L Steel"

Moscow, Teploenergetika, No 3, March 72, pp 64-67

Abstract: The results of an investigation on the chemical composition and mechanical properties of cast components (1000 items) of steam turbine body from perlitic 15Kh1M1F-L steel are presented. It is shown that the production technology ensures basically a sufficiently uniform chemical composition and the assigned level of mechanical properties of cast metal. However for a further improvement of quality of castings from 15Kh1M1F-L steel and greater stability of cast metal high-temperature properties it is advisable to amend the requirements on steel chemical composition and on technology of cast item heat treatment.

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UDC 621.165.621.74.019

TRUSOV, L. P., DUBROVSKAYA, Ye. F., and ZAKHAROVA, L. N.

"Properties of the Metal of Cast Body Parts of Turbines of 15Kh1MLF-L Steel"

Teploenergetika, 1972, No 3, pp 64-67 (from Referativnyy Zhurnal, No 6, Jun 72. Turbostroyeniye. Single Issue. Abstract No 6.49.84)

Translation: It is demonstrated that, for increasing the casting properties and for higher stability of heat-resistant properties of the metal of casts, it is expedient to correct the requirements of "Technical Regulations/Standards", according to the chemical composition of steel and the technology of heat treatment. Four illustr., five tables.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EXPERIMENTAL ACUTE HEPATIC INSUFFICIENCY IN DOGS -U-
AUTHOR--(05)--LOPUKHIN, YU.M., DUBROVSKIY, A.K., KUZNETSOV, V.N., KREMLI,
S.M., KHOVANSKAYA, M.G.
CCOUNTRY OF INFO--USSR
SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 3, PP
25-29
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DOG, LIVER FUNCTION, CARBON TETRACHLORIDE, BLOOD CHEMISTRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1897 STEP NO--UR/0481/70/000/003/0025/0029
CIRC ACCESSION NO--AP0129249
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129249

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN VIEW OF THE FACT THAT UP TO THE PRESENT TIME THERE EXISTS NO SATISFACTORY METHOD OF INDUCING HEPATIC COMA THE AUTHORS CARRIED OUT THREE PRINCIPAL SERIES OF EXPERIMENTS: 1. DEVASCULARIZATION OF THE LIVER WITH PRELIMINARY ESTABLISHMENT OF PORTOCAVAL ANASTOMOSIS. 2. INJECTION OF HEPATOTROPIC POISON (CARBON TETRACHLORIDE) INTO THE BLOOD CHANNEL. 3. LIGATION OF THE HEPATIC ARTERY, BILE DUCTS WITH INTRODUCTION INTO THEM OF CARBON TETRACHLORIDE. EXPERIMENTS WERE CONDUCTED 47 MONGREL DOGS UNDER MORPHINE HEXANAL ANESTHESIA. THE DEVELOPMENT OF HEPATIC INSUFFICIENCY WAS EVALUATED BY THE CLINICAL COURSE, BIOCHEMICAL INDICES OF THE BLOOD (AMMONIUM, UREA, SUGAR, BILIRUBIN, LACTIC ACID) AND MORPHOLOGICAL STUDY OF THE LIVER. THE AUTHORS ARRIVED AT THE CONCLUSION THAT THE MOST COMPLETE SYMPTOM COMPLEX OF ACUTE HEPATIC INSUFFICIENCY IN DOGS WAS OBTAINED ONLY IN THE THIRD SERIES. AMMONIUM TOWARDS THE 3RD-5TH DAY INCREASED UP TO 1.8 PLUS OR MINUS 0.13 MGPERCENT (P SMALLER THAN 0.02); UREA DECREASED DOWN TO 19.0 PLUS OR MINUS 0.73 (P SMALLER THAN 0.02); BILIRUBIN UP TO 2.4 PLUS OR MINUS 0.003 (P SMALLER THAN 0.001); LACTIC ACID INCREASED UP TO 57.0 PLUS OR MINUS 0.001; SUBSEQUENTLY THE BIOCHEMICAL INDICES STEADILY DETERIORATED. THE CLINICAL PICTURE AND SEVERE MORPHOLOGICAL AFFECTION OF THE LIVER SUPPLEMENTED THE BIOCHEMICAL INDICES OF THE BLOOD. THIS MODEL OF ACUTE HEPATIC INSUFFICIENCY ENABLES TO STUDY THE FUNCTIONAL ACTIVITY OF ISOLATED HOMO OR HETEROLIVER. FACILITY: LABORATORIYA PERESADKI ORGANOY TSENTRAL'NOY NAUCHNO-ISSLED. LABORATORII II MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. N. I. PIROGOVA.

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Acc. Nr.

AP0053751

Abstracting Service:

CHEMICAL ABST. 6-70

Ref. Code

UR0032

DUBROVSKIY B.E.

✓ 112393y Use of the adhesive Cyacrin in studies of stress by an optical polarization method. Safarov, Yu. S.; Dubrovskii, B. E.; Garashchenko, V. I. (TsNII Tekhnol. Mashinostr., Moscow, USSR). Zavod. Lab. 1970, 36(1), 114-15 (Russ). Steel and poly(Me methacrylate) were bonded with Cyacrin (I) (by a method described by V. V. Korshak, 1967) and the bonded materials were tested by means of an optical polarization device. I failed to have any shrinkage and was optically inactive. The adhesive bond formed by I was twice as strong as that of a bond formed by an ED-5 resin adhesive (plasticized with 20 parts di-Bu phthalate and 15 parts polyethylenepolyamine). CKJR

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REEL/FRAME
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UDC: 532.582.82+533.601.314

BYCHKOV, N. M., DUBROVSKIY, B. L., KOVALENKO, V. M., Institute of Theoretical and Applied Mechanics, Siberian Department of the Academy of Sciences, Novosibirsk

"Experimental Investigation of the Magnus Effect on a Finned Body of Revolution of Large Elongation at a Mach Number of $M=4$ "

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, No 13(208), Issue 3, Oct 72, pp 24-28

Abstract: When a rotating missile or rocket flies at an angle of attack, aerodynamic forces arise which are directed along the normal to the plane of the attack angle, i. e. the so-called Magnus effect appears. This lateral force deflects the missile from its intended direction, so that the size of the Magnus force and the point of application must be known to calculate the missile trajectory. In this paper the authors determine the Magnus force experimentally on an installation developed for holding the model in a wind tunnel in the proper position, rotating it at the required angular velocity, and measuring the lateral force and yaw moment. The results showed that the Magnus force is positive at low angles of attack.

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BUCHKOV, N. M. et al., Izv. SO AN SSSR, Ser. Tekhn. Nauk, No 13(208), Issue 3, Oct 72, pp 24-28

As the angle increases, the Magnus effect abruptly changes sign and increases considerably in magnitude. At the same time, the point of application of the force shifts toward the nose section. In these experiments, the change in the direction of action of the force took place at angles of attack of 6-7°. The absolute values of the Magnus forces and moments increase linearly as a function of the angular rotation of the model.

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DUBROVSKIY, D.I.

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Biological/psychological

30 Jul 71

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51. USSR

0. Biological and Psychological Problems

DUBROVSKIY, D. I., Doctor of Philosophical Science, Member of the Editorial Staff of "Pis'ma v Zhurnal"

"On the Nature of the Ideal"

SO: FOREIGN PRESS

Moscow, Voprosy Psichologii, No 4, Apr 71, pp 109-113

20 Jul 71

Abstract: Although the ideal exists only within the brain of an individual person, it is nevertheless obviously connected with his real activities and behavior. The ideal is certainly not material, as some neo-positivists insist, at least in practice. It is certainly "real" in the sense it exists subjectively for the individual, his behavior, his behavior, repeated attempts to discard the concept of the ideal from scientific studies of brain activity have proven fruitless. The development of new scientific concepts provides a new opportunity for including these phenomena. The ideal can be considered as information in the cybernetic sense, encoded by signals (neurological processes) which are themselves completely invisible to the individual.

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USSR

DUBROVSKIY, D. I., Voprosy Psichologii, No 4, Apr 71, pp 109-113

The two most significant problems remaining in this area are an analysis of the psychodynamic code and the discovery of the process by which such psychodynamic processes control the activities of the individual.

USSR

UDC 681.327

KHAVKIN, V. Ye., DUBROVSKIY, G. V.

"Test Device"

USSR Author's Certificate No. 275141, Filed 6/03/69, Published 6/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 5, 1971, Abstract No. 5B283P).

Translation: A device is known for testing address decoders of magnetic operative memory units (MOMU). However, this device tests the operation only of the first stage of the address decoding of the MOMU, does not allow testing of the operation of the coordinate switches in the second stage of decoding, and requires a large quantity of equipment. The purpose of the invention is the creation of a device for built-in testing of the entire address portion of a MOMU, the output decoding stage of which is supplied by a voltage generator. In the device suggested, the emitters of all lower coordinate switches are combined together and connected to the test element. The test element is connected to one kth input of a differential amplifier, the other input of which receives a reference voltage which is dependent on fluctuations in temperature, equal to the voltage drop from the selection current across the test element with normal operation of the MOMU. Both outputs of the differential amplifier are connected to a flip-flop indicating defective operation of the address portion of the MOMU. 1 fig.

1/1

Acc. Nr:

AP0043771

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 3, pp 1075-1085

QUASICLASSICAL APPROXIMATION
FOR MULTICHANNEL SCATTERING

Dubrovskiy, G. V.

A quasiclassical method is proposed for determining the multichannel S -matrix for an arbitrary number of channels under consideration. The role of turning points in multichannel scattering and methods for taking them into account in setting up the S -matrix are discussed. An analytic expression for the S -matrix is found by the phase integral technique for the case of binary electron level «pseudo-intersection». The expression can be employed for numerical calculations.

1/1

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19770178

22 21

DUBROVSKIY, K.I.

ORGANIZATION OF THE CONTROL OF SCIENTIFIC RESEARCH

Selections from Russian-language book by K. I. Dubrovskiy:
 Organizatsiya upravleniya nauchnymi issledovaniyami.
 Izdatel'stvo Ekonomika, Moscow, 197 pages.

JPRS 59884
 24 August 1973

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[[[- USSR - 3]
 [[- USSR]

ANNOTATION

The acceleration of scientific and technological progress that is taking place under modern conditions is of special importance. This is explained by the fact that modern industry has entered a period where its growth rate is determined to an ever greater extent by technical progress and the most rapid possible introduction of scientific achievements into the production process. Therefore, the study of the essence of the processes by which science itself develops and its role and place in the public reproduction process is especially important so that the state's policy in the research and development field will be scientifically substantiated.

This book examines the special features connected with modern scientific developments and the methods used to control them. It analyzes the existing project selection procedures and proposes a new procedure that enables a specific scientific selection process. It also discusses methods used in the primary planning of developments. In conclusion, it sets forth methods that make it possible to construct a detailed model of a new development while adequately reflecting the scientific and technical content of the planning process.

This book is aimed at scientific workers, economists, and workers in the planning agencies and network planning and control system services.

Comments and criticisms should be sent to Moscow, 5-50, Berzhkovskaya Naberezhnaya, 6, Izdatel'stvo Ekonomika.

While one of the reported ones would have been both successful and profitable, it may also prove to be the case that the other two would be less than expected or that the results obtained might be put to practical use.

Practical experience has shown that project selection should be approached extremely carefully. Before the necessary means and personnel have been allocated and the work has begun, the revocation of an accepted decision and the replacement of a given project with another -- because the original one proved to be of poor quality for some reason or other -- becomes almost inevitable. Stopping development work that has been begun along a certain line is a very difficult and expensive matter. The most flexible period in the development process is while the possible projects are still being examined and a specific one has not yet been chosen. During this period, it makes sense to evaluate, discuss, and reduce to a minimum, by every means possible, the risk that is connected to the selection process.

Project selection requires (simultaneously) a thorough understanding of the essence of the problem, the ability to evaluate the actual possibilities of solving it correctly, and the knowledge of how to use the results obtained under given conditions of time and space. The selection problem consists not only of eliminating the useless projects, but also of retaining only the necessary ones; that is, project selection should be a directed process. In order to make the appropriate choice with a high degree of assurance that it is the right one, it is necessary to collect and effectively process a large amount of needed information. First and foremost, this information contains evidence about the project's scientific and technical content.

Any project contains some features that are peculiar to it alone; this makes it possible to differentiate projects qualitatively. Project content is also, however, characterized by a specific amount of work. When selecting a project for subsequent development, it is important to consider both its qualitative directivity and the amount of work that will be necessary to complete it.

From the quantitative viewpoint, there are three limitations on project selection. The first restriction is imposed by the total number of workers, for -- as Dzh. Berni correctly noted -- there are always more problems to be solved than qualified personnel capable of solving them. This limitation is

4. **Major points of discussion:** The first three are available in the *Executive Summary*, but are worth repeating. They are: (1) the need for a new approach to achievement; (2) the need for a new approach to the job; and (3) the need for a new approach to the individual.

The management of the scientific and technical development of a country is a complex task, which requires the use of a wide range of scientific and technical knowledge. The management of the scientific and technical development of a country is a complex task, which requires the use of a wide range of scientific and technical knowledge.

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- [illegible]

5013
CEO: 1620-H

USSR

UDC 620.174-987:661.666.2

DUBROVSKIY, K. Ye., and KISSEL', V. V., Moscow

"The Effect of Air Pressure on the Brittle Failure of Graphite"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 1, 1973, pp 33-35

Abstract: An experimental study was made of the effect of air pressure on the failure of graphite with static bending. The demonstrated results from over 15 specimens tested with and without hermetic sealing under high pressure indicate that the ultimate tensile stress increases with increasing air pressure. The increase is nearly linear up to 300 at pressures; at higher pressures the ultimate tensile stress increases more rapidly. The character of this dependence is subject to the degree of the isolation of the specimen from the air. Two figures, one formula, two bibliographic references.

1/1

- 20 -

USSR

UDC 621.373.026.7.001.5

TSIKIN, B.G., DUBROVSKIY, V.A.

"On The Possibility Of Accumulation Of Laser Radiation Scattered By An Electron Stream"

Radiotekhnika i elektronika, Vol. XVII, No 7, July 1972, pp 1433-1438

Abstract: The conditions for the interaction of electron beams with optical radiation are found, and the possibility of the storage of scattered energy is evaluated, with the object of decreasing the requirements imposed on a photodetector. An analysis of the storage condition and an evaluation of its magnitude and criticality to the electron velocity show the effect under consideration can prove to be useful for investigation of the properties of electron beams. The possibility for study of the transient changes of the velocity of the electrons can be used for an investigation of beams with velocity modulation of the electrons. 2 fig. 8 ref. Received by editors, 8 Dec 1970.

1/1

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USSR

UDC: 621.396.677:621.317.743


DUBROVSKIY, V. A., MALYGAN, V. B.

"Evaluating the Effectiveness of Receiving Diplex Telegraph Signals on an Obliquely Polarized Traveling-Wave Antenna"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrical Engineering Institute of Communications), 1970, vyp., pp 62-68 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B55)

Translation: The authors give the results of an experimental study of the effectiveness of type BS antennas on a route of 4200 km length. Measurements were taken on a telegraphic channel reliability analyzer by sequential connection of BSN, BS-2 and BSVN-2 antennas to the input of the reception unit and measuring the amplitude of time distortions of DC pulse trains from the receiver output. Fluctuations in reliability are given when the reception reliability varies over the range of $5 \cdot 10^{-2}$ - $5 \cdot 10^{-5}$ for the three antennas on day and night frequencies, as well as the characteristics of reliability of double reception in the case of spatial and polarization scattering. Four illustrations, five tables. A. K.

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 Communications

USSR

UDC 621.296.23.019.4

BUKHOVINER, V. YE., DUBROVSKIY, V. A., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications

"Study of Time Distortions of Signals in Long-Range Radio Communications"

Moscow, Radiotekhnika, No 4, 1970, pp 20-25

Abstract: This article contains a discussion of the results of analyzing the statistical laws of variation of time distortions of radiotelegraph signals on long routes. Approximations of the empirical laws for different communication quality are presented, and recommendations are formulated with respect to organization of relays. Actual data are tabulated for example stations around the world.

Experimental investigation of the statistical laws of variation of time distortions of telegraph signals executed with the help of the TANK analyzer on five long-range radio lines demonstrated that approximation of the probability density distribution of the distortions by a power law remains valid not only on single-jump routes but also on multi-jump routes. Approximation by an exponential law is valid when improving the communications quality. Approximation of the communications quality variation law on long-range routes in the "reliability-validity" coordinates, just as on single-jump routes, is characterized by a
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USSR

BUKHVINER, V. YE., DUBROVSKIY, V. A., Radiotekhnika, No 4, 1970, pp 20-25

logarithmically normal law. The data obtained permit a quantitative estimation of the communications quality on long-range radio lines, recommendations of signal relays on single-jump spans of 2,000-3,000 km and they also indicate that the keying rate not exceed 100 baud on long-range radio lines.

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1/3 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TRANSFORMED STERIODS. 26. SYNTHESIS OF 16 ALPHA, 17 ALPHA
DIHYDROXYPROGESTERONE AND SOME OF ITS DERIVATIVES -U-
AUTHOR-(04)-AKHREM, A.A., DUBROVSKIY, V.A., KAMERNITSKIY, A.V.,
PAVLQVAGRISHINA, N.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 895-900
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PROGESTERONE, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0446 STEP NO--UR/0062/70/000/004/0895/0900
CIRC ACCESSION NO--AP0131084
UNCLASSIFIED

2/3 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131084

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KEEPING PREGN-5-ENE-3 BETA, 16 ALPHA, 17 ALPHA TRIOL-20 ONE 16 ACETATE 3 DAYS WITH CYCLOPENTANONE IN DIOXANE IN THE PRESENCE OF 70PERCENT HClO SUB4 GAVE SIMILAR TO 60PERCENT 16 ALPHA, 17 ALPHA CYCLOPENTYLIDENEDIOXY PREGN 5 EN 3 BETA OL 20 ONE (IA), M. 211.5-12.5DEGREES. WITH CYCLOHEXANONE THE PRODUCT WAS THE CYCLOHEXYLIDENEDIOXY ANALOG, M. 189-91DEGREES, WHILE CYCLOHEPTANONE GAVE THE CYCLOHEPTYLIDENEDIOXY ANALOG, M. 185-70DEGREES. 16 ALPHA, 17 ALPHA EPOXYPROGESTERONE (I) AND ETU SUB2 CNH NH SUB2 IN ACOH DIOXANE GAVE THE 3,20 BIS(CARBETHOXYHYDRAZONE), DECOMPD. 300DEGREES, WHICH WITH PYRUVIC ACID IN ACOH AT 100DEGREES 20 MIN GAVE I. I TREATED WITH ETU SUB2 CNH NH SUB2 AS ABOVE 2 HR IN ACOH AT 85DEGREES, THEN TREATED WITH H SUB2 O, FOLLOWED TO ACOH AND AQ. PYRUVIC ACID AT 100DEGREES, GAVE 16 ALPHA ACETOXY 17 ALPHA HYDROXYPROGESTERONE, M. 172-4DEGREES, WHICH WITH AQ. MEOH-K SUB2 CO SUB3 IN 1 HR GAVE 16 ALPHA, 17 ALPHA DIHYDROXYPROGESTERONE, M. 204-10DEGREES, WHICH IN A QUARTZ TUBE HELD AT ITS M. P. 0.5 HR GAVE THE THERMAL ISOMERIZATION PRODUCT 17 ALPHA BETA METHYL D HOMOANDROST 4 ENE 16 ALPHA, 17 A ALPHA DIOL 3,17 DIONE (II), M. 188-92DEGREES. 16 ALPHA, 17 ALPHA ISOPROPYLIDENEDIOXY PREGN 5 EN 3 BETA OL 20 ONE OXIDIZED WITH CRO SUB3 IN ME SUB2 CO-H SUB2 SO SUB4 AT MINUS 10DEGREES GAVE 16 ALPHA, 17 ALPHA ISOPROPYLIDENEDIOXYPROGESTERONE, M. 209-110DEGREES.

UNCLASSIFIED

3/3 017 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0131084
ABSTRACT/EXTRACT--IA AND AL (OCHME SUB2) SUB3 IN MEPH REFLUXED 4 HR IN THE
PRESENCE OF CYCLOHEXANONE GAVE 16 ALPHA, 17 ALPHA
CYCLOPENTYLIDENEDIOXYPROGESTERONE, M. 173-4DEGREES, ALSO FORMED FROM IA
AND CRO SUB3 IN ME SUB2 CO-H SUB2 SO SUB4 AT MINUS 10DEGREES UNDER N₂
THEN HEATING THE PRODUCT WITH MECH AND KOH. SIMILARLY WAS PREPD. THE 16
ALPHA, 17 ALPHA CYCLOHEXYLIDENEDIOXY ANALOG, M. 135-9DEGREES, AND THE
CYCLOHEPTYLIDENE ANALOG, M. 148-9DEGREES. FACILITY: INST. ORG.
KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.621

DUBROVSKIY, V. A., GORDEYEV, V. A., Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Evaluating the Reliability of Diversity Reception on Antennas of Different Polarization"

Moscow, Radiotekhnika, Vol 27, No 8, Aug 72, pp 98-100

Abstract: The paper presents the results of experimental studies of the reliability of spaced short-wave reception on obliquely polarized antennas. It is shown that the reliability of diversity reception of this type is identical to that of the presently used method of space diversity reception.

1/1

USSR

UDC 621.059.52:691.3

DUBROVSKIY, V.B., ZHOLDAK, G.I., KORENEVSKIY, V.V., PERGAMENSHCHIK, B.K.,
~~PEREVALOV, V.S.~~

"Concretes Using Iron-Ore Aggregates Under Conditions Of High Radiation--
Temperature Loads"

V sb. Vopr. fiz. zashchity reaktorov (Problems Of Physical Shielding Of Reactors-
Collection Of Works), Issue 5, Moscow, Atomizdat, 1972, pp 262-273 (from
RZh:Yadernyye reaktory, No 6, June 1972, Abstract No 6.50.125)

Translation: Portland cement hematitic concrete has good protective properties
even with an absence of water in it. It is sufficiently radiation resistant in
the presence of cumulative doses up to $7 \cdot 10^{20}$ n/cm². A significant change of
stability, modulus of deformation, thermal conductivity, and coefficient of
temperature expansion is not displayed. The expansion is discussed of concrete
during irradiation which reaches 1--2 percent (linear) with a cumulative dose of
(2--7) $\cdot 10^{20}$ n/cm², which it is necessary to take into account during planning
of the construction of shielding from this material. With a temperature close
to 1000° C portland cement hematitic concrete preserves its properties to a
sufficient degree. It is shown experimentally that it is possible to use such
concrete in shielding at temperatures up to 800° C. 5 ill. 5 tab. 6 ref.

1/1

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--HEMATITE CONCRETE FOR SHIELDING FROM HIGH NEUTRON FLUXES -U-

AUTHOR--(05)-DUBROVSKIY, V.B., IBRAGIMOV, SH.SH., KORENEVSKIY, V.V.,
LADYGIN, A.A., PERGAMENSHCHIK, V.K.
COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970. 28(3), 258-60

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CEMENT, NEUTRON SHIELDING, IRON ORE, MECHANICAL
STRENGTH/(U)298 CEMENT, (U)2134 HEMATITE ORE, (U)298 HEMATITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3004/0752

STEP NO--UR/0089/70/028/003/0258/0260

CIRC ACCESSION NO--AP0131347

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131347

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IRRADN. OF HEMATITE CONCRETE (PREPD. USING CEMENT 298, HEMATITE ORE 2134, FINELY DISPERSED HEMATITE 298, AND H SUB2 O 300 KG, AND HAVING A BULK D. OF 3030 KG-M PRIME 3) WITH AN INTERGRATED DOSE OF 2.6 TIMES 10 PRIME 20 N-CM SUB2 AT 250DEGREES CAUSES EXPANSION OF THE SAMPLES BY 1.2-1.5PERCENT, BUT FURTHER INCREASED IN THE DOSE (LESS THAN OR EQUAL TO 6.1 TIMES 10 SUB20 N-CM SUB2) AND TEMP. OF IRRADN. (350-400DEGREES) REDUCES THE EXPANSION TO ONLY 0.7-0.9PERCENT. THE IRRADN. REDUCES THE WT. OF THE SAMPLES BY UP TO 4PERCENT AT A DOSE OF (5-6) TIMES 10 PRIME 20 N-CM SUB2 AND REDUCES SOMEWHAT THE THERMAL COND., MECH. STRENGTH, AND DEFORMATION MODULI OF THE CONCRETE.

UNCLASSIFIED

1/3 016 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SEASONAL DEPENDENCE OF THE DOMINANT DIRECTION OF POLARIZATION OF
GEOMAGNETIC VARIATIONS -U-
AUTHOR-(02)-DUBROVSKIY, V.G., SOLOKHOV, V.V. D

COUNTRY OF INFO--USSR

SOURCE--GEOMAGNETIZM I AEORNOIIA, VOL. 10, NO. 1, 1970, P. 167-169

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SEASONAL VARIATION, MAGNETIC POLARIZATION, GEOMAGNETIC FIELD,
TELLURIC CURRENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1038

STEP NO--UR/0203/70/010/001/0167/0169

CIRC ACCESSION NO--AP0102969

UNCLASSIFIED

2/3 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102969

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EVALUATION OF SOME NEW EXPERIMENTAL DATA INDICATING THE PRESENCE OF A CERTAIN PATTERN IN THE SEASONAL CHANGES IN THE DOMINANT DIRECTION OF POLARIZATION OF GEOMAGNETIC VARIATIONS. THE DATA IN QUESTION WERE OBTAINED FROM AN ANALYSIS OF THE RESULTS OF MAGNETOTELLURIC FIELD OBSERVATIONS IN THE LOWLANDS OF WESTERN TURKMENIA. THE AZIMUTHS OF THE MAJOR AXES OF THE STATISTICAL POLARIZATION ELLIPSES WERE TAKEN AS A PARAMETER CHARACTERIZING THE DOMINANT DIRECTION OF POLARIZATION OF THE MAGNETOTELLURIC FIELD. IT IS FOUND THAT OVER THE ENTIRE LENGTH OF THE PROFILE STUDIED THE MAJOR AXES OF THE MAGNETIC AND ELECTRICAL STATISTICAL POLARIZATION ELLIPSES IN THE PERIOD RANGE FROM 10 TO 200 SEC ARE ORTHOGONAL WITH AN ACCURACY OF UP TO 10 TO 15 DEG, THUS ATTESTING TO THE ABSENCE OF LARGE MAGNETOTELLURIC FIELD DISTORTIONS DUE TO HORIZONTAL GEODELECTRIC INHOMOGENEITIES IN THIS FREQUENCY RANGE. THE RELATIVELY LOW DEGREE OF DISTURBANCE OF THE MAGNETOTELLURIC FIELD STRUCTURE IN THIS FREQUENCY RANGE IS ALSO INDICATED BY THE DEGREE OF POLARIZATION, WHICH FLUCTUATES FROM 0.45 TO 0.65. IN THE CASE OF VARIATIONS WITH A PERIOD EXCEEDING 200 SEC DEVIATIONS FROM ORTHOGONALITY EXCEEDING 20 TO 30 DEG WERE NOTED ONLY AT CERTAIN OBSERVATION POINTS. A PRONOUNCED DEPENDENCE OF THE DOMINANT DIRECTION OF POLARIZATION OF THE MAGNETOTELLURIC FIELD ON THE SEASON OF THE YEAR IS NOTED, ESPECIALLY IN THE CASE OF MICROPULSATIONS OF THE MAGNETIC FIELD (PERIODS OF 10 TO 100 SEC).

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3/3 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102969

ABSTRACT/EXTRACT--ONLY IN THE LOW FREQUENCY RANGE (PERIODS GREATER THAN 400 SEC) DOES THE DOMINANT DIRECTION OF POLARIZATION OF THE MAGNETIC FIELD VARIATIONS NOT DEPEND ON THE SEASON, BUT CORRESPONDS TO A NORTHWEST TO SOUTHEAST DIRECTION.

UNCLASSIFIED

USSR

UDC: 621.391.827.001.24

DUBROVSKIY, V. V.

"Transient Interference Between Channels With Pulse-Position Modulation and a Service Channel Based on High-Frequency Pulse Modulation of the Transmitter Carrier Frequency"

Sb. tr. Leningr. in-t inzh. zh.-d. transp. (Collected Works of the Leningrad Institute of Railway Transportation Engineers), 1971, vyp. 316, pp 26-31 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A230)

Translation: The paper deals with the transient interference between channels of equipment with pulse-position modulation and a service channel based on the method of high-frequency pulse modulation. A formula is derived which can be used to calculate the frequency deviation of the service channel on the basis of permissible norms for transient interference. Four illustrations, bibliography of two titles. Resumé.

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- 32 -

USSR

UDC 62-50 3

YEMEL'YANOV, S.V.; UTKIN, V.I.; TARIN, V.A.; KOSTYLEVA, N.Ye.; SHUBLADZE, A.M.; YEZEROV, V.B.; DUBROVSKIY, Ye.N.

"Theory of Systems with Variable Structure" (book)

Teoriya Sistem s Peremennoy Strukturay [English version above], Moscow, Nauka Press, 1970, 592 pp

Annotation: This book presents a new division in the theory of automatic control -- the theory of systems with variable structure (VSS) belonging to the class of nonlinear automatic control systems. A broad range of problems is covered. The problems of control of objects with constant and variable parameters in the mode of free motion and with external perturbing forces are studied. Considerable attention is given to solution of the problem of stability of the systems in question. Methods are suggested for controlling objects with many controlled quantities. Methods are presented for synthesis of adaptive systems with variable, simple solutions. The capabilities of methods

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USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

from the theory of systems with variable structure with incomplete information on the state of the system are studied. Problems related to the application of variable structure systems in problems of filtration are analyzed; a qualitative comparison of linear optimal filters and filters with variable structure is presented.

181 figures; 137 biblio. refs.

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturou, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow, Nauka Press, 1970, 592 pp

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USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturay, Moscow, Nauka Press, 1970, 592 pp

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USSR

UDC 616.993.162-036.21(574.12)

DUBROVSKIY, Yu. A. and SAF'YANOVA, V. M., Department of Diseases of
Natural Foci, Institute of Epidemiology and Microbiology imeni N. F.
Gamaleya, Academy of Medical Sciences USSR

"Natural Foci of Cutaneous Leishmaniasis Along the Middle Emba"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971,
pp 556-561

Abstract: A 1970 field trip in West Kazakh SSR resulted in the discovery of natural foci of cutaneous leishmaniasis in great gerbil colonies along the middle reaches of the Emba River (which flows southwest into the Caspian Sea). The most northerly point at which the pathogen of the disease was found is the left bank of the Emba opposite the settlement of Elubayshiye. The gerbils are continuing to move north and establishing new colonies. The principal parasite of the rodents is the sandfly *Phlebotomus mongolensis* Sinton. Its abundance in June is as high as in optimum habitats of sandflies in the southern desert. Two generations of the insect are possible during the summer. The northern boundary of the spread of the agent of cutaneous leishmaniasis along the Emba more or less coincides with the range of its main warm-blooded carrier, the great gerbil.

1/1

USSR

UDC 595.323.4 Rhombomys: 591:9

DUBROVSKIY, YU. A., and KUCHERUK, V. V., Laboratory of Medical Zoology,
Institute of Epidemiology and Microbiology, Academy of Medical Sciences USSR

"Spatial Distribution of the Great Gerbil *Rhombomys opimus* in Central Asia
and Kazakhstan"

Moscow, Zoologicheskiy Zhurnal, No 2, 1971, pp 259-273

Abstract: An animal population is regarded as a grouping of the individuals of a single species capable of independent reproduction for an indefinite period of time. Associations of neighboring populations as well as parts of a single population lose some of the typical features of a population. Associations of great gerbil populations are of 5 kinds: (i) elementary parts of populations, i.e., animals mostly associated with a well-delineated area, (ii) populations, (iii) autonomous groups of populations, (iv) regional complexes of autonomous groups of populations, and (v) geographical units of species. The great gerbil's range is divided into Mongolian-Chinese, Iranian, and Central Asian-Kazakh. The latter, the most studied, consists of 11 regional complexes of autonomous population groups: Iliy, Balkhash, Betpakdalin-Muyunkum, Aral, Northeastern Caspian, Mangyshlak, Ustyurt, Turkmen, South-
1/2

USSR

DUBROVSKIY, YU. A., and KUCHERUK, V. V., Zoologicheskii Zhurnal, No 2, 1971,
pp 259-273

eastern Karakum, Kyzyl Kum, and Karshin. The great gerbil typically
inhabits the southern deserts and the transitional zone between the
Southern and northern deserts.

2/2

1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--USE OF THE FLAG METHOD FOR STUDY OF THE DISTRIBUTION OF SANDFLIES
ON THE SURFACE OF SANDY DESERT -U-
AUTHOR-(03)-DUBROVSKIY, YU.A., KOMAROVA, L.V., SIDOROVA, G.A.
COUNTRY OF INFO--USSR **D**
SOURCE--ZOOLOGICHESKIY ZHURNAL, 1970, NR 1, PP 89-95
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SAND FLY, DESERT, POPULATION LEVEL, MEASUREMENT

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/1199 STEP NO--UR/0439/70/000/001/0089/0095
CIRC ACCESSION NO--AP0130214
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130214

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SANDFLY POPULATION IN NATURAL FOCI OF CUTANEOUS LEISHMANIASIS IN EASTERN TURKMEN SSR WAS DETERMINED WITH FLAGS OF STICKY PAPER ON TAMPED GROUND. STUDIES WERE CONDUCTED IN MAY AND JUNE, 1968, WITH 20 TIMES 30 CM FLAGS MOISTENED WITH CASTOR OIL. THE NUMBER OF SPECIMENS OF PHLEBOTOMUS CAUCASICUS AND SERGENTHOMYIA GREKOVI ON THE SURFACE OF BURROWS INHABITED BY GREAT GERBILS (THE CHIEF DWELLING PLACE OF SANDFLIES IN THIS AREA) WAS 2 TO 7 TIMES GREATER THAN THE NUMBER OF SPECIMENS ON THE SURFACE OF UNINHABITED BURROWS. BETWEEN BURROWS, THE SANDFLY DENSITY WAS 2.1 TIMES SMALLER THAN ON THE SURFACE OF UNINHABITED BURROWS AND EIGHT TIMES LESS THAN ON THE SURFACE OF INHABITED BURROWS. THE SANDFLY POPULATION WAS IDENTICAL ON SLIGHT ELEVATIONS AND DEPRESSIONS OF THE DESERT FLOOR RANGING IN HEIGHT FROM 3-4 TO 8-10 M. NO DIFFERENCES IN DISTRIBUTION OF SANDFLIES SPECIES, SEX OF DEVELOPMENTAL STAGE ON VARIOUS LANDSCAPES FEATURES OR DIFFERENCES IN ADAPTAION TO BURROW SURFACE OR SPACES BETWEEN BURROWS WERE FOUND. IT WAS CONCLUDED THAT THE VERY EVEN DISTRIBUTION OF SANDFLIES WAS CAUSED BY THE VERY SLIGHT VARIATION IN COMPOSITION AND HUMIDITY OF THE GROUND IN VARIOUS PARTS OF THE LANDSCAPE. FACILITY: INSTITUTE OF EPIDEMIOLOGY AND MICROBIOLOGY, AMN, SSSR, MOSCOW. FACILITY: INSTITUTE OF FRIENDSHIP OF PEOPLES IMENI PATRICE LUMUMBA, MOSCOW.

UNCLASSIFIED

USSR

UDC 621.791.527.732.026

RAZIMOV, M. T., and DUBSKIKH, V. Ya., Ural Polytechnical Institute Lenin St., Kirov

"Cavitation Immunity and Mechanical Characteristics of Smelted Metal With Aged Martensite Structure"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 23-26

Abstract: In the repair of hydroturbine rotating blades, stainless steel electrodes are widely used. Although metals melted by such electrodes are highly immune to cavitation, they are still inferior to electrodes of the ferritic class (type LF-13, for example). But use of these electrodes involves difficulties, and as a result there has been research in the cavitation immunity of austenitic dispersion-hardened steels. Since these studies have ignored data on the cavitation immunity of the cast metal, this article sets out to remedy the lack of data. The specimens for investigating the mechanical characteristics and cavitation immunity were taken from the upper layers of the castings, and were tested under intense cavitation on a shock-erosion machine. During the tests, specimens measuring 10 x 16 x 5 mm were subjected to a water jet with a pressure of 10 MPa and a speed of 73 m/sec in a closed chamber under a pressure of 0.2 MPa.

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USSR

RAZIKOV, M. I., and DUBSKINA, V. Val., *Avtomaticheskaya Svarka*, No. 10, 1977, pp 23-26

atm through a nozzle 3 mm in diameter. The results were estimated from the weight loss of the specimens in 2 hours for each sample. A table of the chemical compositions of the specimen is given together with photographs of the effect of temperature annealing on the metal specimen microstructures. The article concludes with recommendations on how immunity to cavitation may be improved.

2/2

USSR

DUBSON, M. S., SOROKINA, S. G., TYURIN, Yu. N.

"The Best Selection of Factors in a Prediction Problem"

Mat. Metody Resheniya Ekon. Zadach [Mathematical Methods of Solution of Economics Problems -- Collection of Works], No 3, Moscow, Nauka Press, 1972, pp 152-157 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V176, by the authors).

Translation: Suppose $y = \sum_{i=1}^{\infty} a_i x_i$, where x_1, x_2, \dots are independent normal random quantities with parameters $(0, 1)$, a_1, a_2, \dots are constants. It is assumed that n independent observations of the x 's and y 's are made. Using the method of least squares, they can be used to produce $m < n$ estimates \hat{a}_i . Suppose, furthermore, one more sequence of x 's x_1^*, x_2^*, \dots is observed, from which we construct the y prediction $y_m^* = \sum_{i=1}^m \hat{a}_i x_i^*$. The question is, with what number m of selected prediction factors is $D(y - y_m^*)$ best in the sense of the minimum? This dispersion is calculated. The optimal sample m depends

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USSR

Dubson, M. S., Sorokina, S. G., Tyurin, Yu. N., Mat. Metody Resheniya Ekon. Zadach, No 3, Moscow, Nauka Press, 1972, pp 152-157.

on the structure of sequence a_i , for which m may take on any value. Similar calculations are performed as ¹ to minimization of losses made up of the dispersion of the prognosis and the payment for observations of the x 's.

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- 17 ..

Acc. Nr: **AF0015430** Abstr: **CHEMI**

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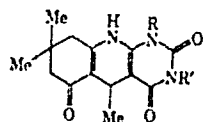
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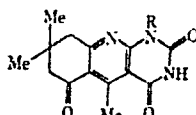
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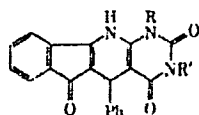
89602e Constants of the acid dissociation of some nitrogen-containing polynuclear systems. Stankevics, E.; Ponelis, I.; Grinsteins, E.; Ozola, A.; Duburs, G. (Inst. Org. Syn., Riga, USSR). *Khim. Geterotsikl. Soedin.* 1976, (1), 122-4 (Russ). The conventional spectrophotometric method was used to det.



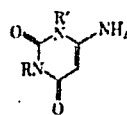
(I)



(II)



(III)



(IV)

the pK_a 's of compds. I-IV (R and R' = H or Me). The results were presented in a table. Michael K. Hrenoff

REEL/FRAME

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USSR

UDC 547.822.1

TIRZIT, G. D., and DUBUR, G. Ya., Institute of Organic Synthesis, Riga

"1,4-Dihydropyridines as Inhibitors of Free-Radical Reactions"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 1972, pp 133-134

Abstract: Certain of the 1,4-dihydropyridines are known to possess hydrogen-donor properties. This led to the present study of these compounds as inhibitors of free-radical reactions. The autooxidation of linetol was employed, the level of peroxidation being determined with the use of iodometric titration and with the reaction with 2-thiobarbituric acid. The antioxidant activity of the 1,4-dihydropyridines was then expressed in percent of reduction of auto-oxidation. The reduction of electrochemiluminescence by this group of compounds was also studied. The authors conclude that 1,4-dihydropyridines have been definitely established as a new class of antioxidants -- inhibitors of free-radical reactions. Tables of data obtained accompany the paper.

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-- 9 --

Biophysics

USSR

UDC 547.953.2

ZILBER, YU. A., DUBUR, G. YA., KUMSAR, K. K., and VELENA, A. KH., Order of Labor Red Banner, Institute of Organic Synthesis, Academy of Sciences, Latvian SSR

"The Effect of Antioxidants on the Peroxidation of Bimolecular Phospholipid Membranes"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 6(287), 1971, pp 80-82

Abstract: A study was made of possibilities of protecting biological membranes with synthetic peroxidation inhibitors from the adverse effect of oxidation. Protection from oxidation ensures preservation of the structure and function of the membranes and regulates their permeability and enzymatic reactions. Lecithin was used to prepare phospholipid micelles. Micelles were prepared from purified lecithin in 0.15 M KCL solution (15% lecithin per ml), shaken mechanically for 30 minutes, and left overnight at 4°C. All changes in the concentration of dissolved oxygen were determined by the polarographic method in a glass-cell with a rotating platinum electrode, at 45°C,

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USSR

ZILBER, YU. A., et al., Izvestiya Akademii Nauk Latvyskoy SSR, No 6(287), 1971, pp 80-82

and recorded on EPP-093 automatic recorder. Hemoglobin in a concentration of $2 \cdot 10^{-5}M$ was used as catalyst for the oxidizing processes. Antioxidants were 2,6-di-(tert-butyl)-4-methylphenol (1) and 2,2,4-trimethyl-1,2-dihydroquinoline (2). The results showed that phospholipid micelles in the presence of hemoglobin catalyst utilize oxygen intensively. The compound (1) in concentration of $1 \cdot 5M$ inhibits the utilization of oxygen two times, and the compound (2) -- almost four times.

2/2

- 2 -

USSR

UDC 678.004.14:663.63.

PEREPECHKIN, L. P., and DUBYAGA, V. E.

"Semipermeable Membranes for Desalination and Purification of Water"

Plasticheskiye Massy, No 4, Apr 71, pp 49-52

Abstract: A commonly used material for the production of membranes for desalination of water is cellulose acetate. These materials display unique and favorable properties in comparison with membranes made of other polymers. The article describes the formation of semipermeable membranes from the melt and from solutions via the dry and the wet methods. In the production of membranes acetate is obtained by a multistage process. During the acetylation of cellulose by the homogenous method a viscous concentrated solution is obtained from which subsequently cellulose acetate is precipitated in the form of solid white particles. In principle there is no reason why the syrup cannot be directly formed into membranes. This would significantly shorten the production cycle and consequently the cost of the membrane. It was found that heat treatment of the membranes, particularly during the first 15 minutes has a significant effect on the properties of the membranes. As a result of heat treatment the coefficient of water permeability increases.

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USSR

PEREPECHKIN, L. P., and DUBYAGA, V. P., *Elasticheskiye Massy*, No 4, Apr 71, pp 49-52

significantly, while the salt permeability decreases and the selectivity of the membranes, characterized by α/K ratio, increases. As the temperature of the formation of the membrane is increased the selectivity of the membrane decreases. The conclusion is made that the temperature of the precipitation bath has a significant effect on the structure and properties of the membrane. In order to improve the selectivity of membranes and increase their efficiency pore formers are introduced into the solution from which the polymer is precipitated. A mechanism is proposed for the effects of pore formers on the structure and permeability of the membranes.

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USSR

UDC 534.121.2:661.7

APEL'TSIN, I. E., KARELIN, F. N., LISHNEVSKIY, V. A., DUBYAGA, V. P.,
PEREPECHKIN, L. P., MIRONOVA, L. V., and ZAYCHUKOVA, N. A.

"Acetylcellulose Membranes for Desalination of Water by Hyperfiltration"

Moscow, Vodosnabzheniye i Sanitarnaya Teknika, No 6, 1971, pp 18-19

Abstract: Three types of membranes are reported suitable for water desalination. One prepared from an acetone solution of acetylcellulose "Etrol B" with a small quantity of water and magnesium perchlorate was deposited on glass at -12°C , kept in air for 3.5 min, the membrane was separated from glass and kept in water at 80° for 70 min. Such a membrane gave a 84-88% desalination with $500 \text{ l/m}^2 \cdot \text{day}$ of water passage at 50 atm pressure. Using the same "Etrol B" acetyl cellulose in acetone and formamide, the membrane was formed on glass at 18°C , then treated at 80°C for 30 min. This membrane gave a 83-85% desalination with $800 \text{ l/m}^2 \cdot \text{day}$ passage capacity at 50 atm pressure. Acetyl cellulose membranes prepared from acetic acid solution containing triethanolamine acetate and sulfate admixtures gave a 90-91% desalination with $300 \text{ l/m}^2 \cdot \text{day}$ passage of water at 65 atm pressure.

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USSR

UDC 911.3.616.981.452(574)

LAVROVSKIY, A. A., KUCHEROV, P. M., OPTYAKOVA, A. F., ROZHKOVA, A. A.,
DEREVYANCHENKO, K. I., MATSUGA, V. G., BAKHTIGOZIN, I. A., ROZHKOVA, A. A.,
CHIKRIZOV, F. D., KARUSHIN, P. A., and DUBYAGIN, P. S.

"Survival of Plague Bacteria During Interepizootic Years in the Sands Focus Area
Between the Volga and Ural River"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous In-
fections — collection of works) Vyp. 4 (14). Saratov, 1970, pp 94-104
(from RZh-Meditsinskaya Geografiya, Separate Issue, No 4, Abstract No
4.36.93)

Translation: A list is presented of reasons for the abrupt decrease in
epizootic activity in the sands plague focus between the Volga and Ural
Rivers. Plague bacteria, however, did not disappear from the biocenotic
focus system, as evidenced by the epizootics of 1962-1963 and 1966 and the
isolated cases of isolation of bacterial cultures from gerbils during de-
pressed phases of focus life. It becomes more and more evident that the
phenomenon of microfocality is an indispensable attribute of existence of
plague bacteria in the biocenosis. Materials on landscape adjustment of
particularly stable plague epizootics facilitate the definition, in the

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JSR

LAVROVSKIY, A. A., et al., Probl. osobo opash. infektsiy (Problems of Especially Dangerous Infections -- collection of Works) Vyp. 4 (14). Saratov, 1970, pp 94-104 (from RZh-Meditsinskaya Geografiya, Separate Issue, No 4, Abstract No 4.36.93)

Volga-Ural sands area, of several more significant regions where the plague pathogen apparently survives even during depressed phases of focus activity.

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Hematology

USSR

UDC 591.1

NEFEDOV, V. P., SAMOYLOV, V. A., KUDYAKOVA, N. N., DUBYNIN, V. N., PETUSHKOV, V. N., YASNIKOV, I. L., NIKHAYLOV, V. I., and KHRUSTALOV, V. F., Institute of Physics imeni L. V. Kirenskiy, Siberian Department USSR Academy of Sciences

"Culturing Bone Marrow in Vitro by the Method of Isolated Organ Perfusion"

Moscow, Izvestiya Akademii Nauk SSSR, No 2, Mar/Apr 71, pp 179-191

Abstract: The role played by the bone marrow in maintaining normal erythron series was studied. Blood was perfused through the isolated sternum by means of a pumping and oxygenating system which automatically regulated the perfusion pressure, pO_2 , HbO_2 , pH, and temperature of the perfused blood, partly in response to the feedback information on pO_2 , temperature, and impedance received from the bone marrow. Best results were obtained when the circulating blood was completely exchanged after 12 hours of perfusion. The maximum duration of perfusion was 20 hours. Histological examination of the sternum performed after 6, 11, and 17 hours of perfusion revealed a shift in the leukoerythroblast ratio toward the red series and a normal maturation of erythrocytes and granulocytes.

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USSR

UDC 616.981.513-022.38

DUCHINSKIY, B. M., and PROKOPOVA, L. L., Kievskaya Oblast Sanitary Epidemiological Station

"Etiological Role of Bac. cereus in Food Poisoning"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 10, Oct 70, p 141

Translation: Since 1968, in the diagnosis of food poisoning, the laboratories of the sanitary-epidemiological institutions in Kievskaya Oblast have been studying samples submitted for the presence of such a conditionally pathogenic microorganism as Bac. cereus, whose etiological significance in food poisoning has now been established. In this communication, a case of food poisoning in which the etiological role of Bac. cereus was highly probable is described.

Thirteen persons were poisoned by eating meat (cutlets and chops) which, prior to consumption, had been kept for 6 hours under conditions conducive to the growth of microorganisms. The clinical picture was characterized by a short incubation period (4-6 hours) and a mild form of the disease. Symptoms common to all patients were abdominal pain and nausea. Three patients had frequent,
1/4

USSR

DUCHINSKIY, B. M., and PROKOPOVA, L. L., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 10, Oct 70, p 141

liquid stools, without admixture of blood. One patient vomited. An increase in temperature up to 37-37.3°C was observed in two patients. After immediate medical aid was given, the patients felt considerably better. The symptoms of the disease disappeared within 12 hours.

Laboratory tests were performed on samples of the liquid with which the stomachs of the patients had been washed, on samples of the raw meat cut from the carcass and of processed meat from which the cutlets and chops were made, and on samples of the leftover cutlets and chops, both semiprepared and completely prepared for consumption. Bacteriological investigation revealed neither the pathogenic microflora of the intestinal group nor the pathogenic staphylococci. Neither were any enteropathogenic intestinal bacilli found. However, all samples contained intestinal bacilli, while some samples (prepared chops) contained intestinal bacilli and *Proteus vulgaris*. Samples of the prepared product, semiprepared products, raw processed meat, and meat from the carcass also contained a gram-positive, spore-forming microorganism. Its concentration in the prepared cutlets and chops was 7×10^6 and 5×10^5 per gram, respectively. The microbe was identified as *Bac. cereus* on the basis of its morphological and biological properties.

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- 9 -

USSR

DUCHINSKIY, B. M., and PROKOPOVA, L. L., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 10, Oct 70, p 141

The isolated *Bac. cereus* strain displayed a strong hemolytic and lecithinase activity, diluted gelatin within the first 24 hours after inoculation, peptonized milk, and reduced nitrates. It fermented glucose, mannose, sucrose, and glycerol, with formation of acids; maltose and lactose were not fermented within 24 hours.

When white mice were intraperitoneally administered a filtrate of a day-old culture of *Bac. cereus*, they died within 24 hours. The isolated strain proved pathogenic for 20-gram white mice after intraperitoneal and oral administration. The animals became passive and developed diarrhea in 4 hours, and died in 24 hours. *Bac. cereus* was isolated from the blood, liver, spleen, and intestinal content of the dead mice. Tests performed to check whether the intestinal bacillus and *Proteus vulgaris* isolated from the food samples were pathogenic for white mice resulted in no death of the laboratory animals.

No determinations were made to establish the presence of *Bac. cereus* in samples obtained from the patients, no blood samples were taken from the patients, and no agglutination reaction was performed on the isolated strain

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USSR

DUCHINSKIY, B. M., and PROKOPOVA, L. L., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 10, Oct 70, p 141

to confirm the diagnosis. Nevertheless, the latency period, the nature and duration of the disease, and the information recorded in the case history to the effect that the patients had consumed meat containing *Bac. cereus* which proved very toxic and pathogenic for laboratory animals was a valid reason for us to assume that the observed toxic infection was associated with the infestation of food with the above-mentioned microbe. The intestinal bacillus and *Proteus vulgaris*, which were isolated from the food samples simultaneously with the *Bac. cereus*, evidently magnified the pathogenic effects of *Bac. cereus* and made the course of the disease more severe in some patients.

The above-described case of food poisoning indicates that *Bac. cereus* may cause toxic infections, and that tests for the presence of this microbe in all cases of food poisoning should be performed in the bacteriological laboratories of our sanitary-epidemiological stations.

4/4

- 10 -

1/2 008
TITLE--REACTION OF NICKEL (II) SULFATE AND NITRATE WITH MONOETHANOLAMINE
-U-
AUTHOR--DUCHINSKIY, YU.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2),
148-50
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--NICKEL SULFATE, NITRATE, MONOETHANOLAMINE, NICKEL COMPLEX
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1101
CIRC ACCESSION NO--AT0134737
STEP NO--UR/0153/70/013/002/0148/0150
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0134787

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. NI(NO SUB3) SUB2 3NH SUB2 CH SUB2 CH SUB2 OH IS PREPD. BY MIXING A SATD. ALC. SOLN. OF NI(NO SUB3) SUB2 WITH NH SUB2 CH SUB2 CH SUB2 OH (I) FOLLOWED BY EVAPN. OF ETCH, OR BY REFLUXING NI(NO SUB3) SUB2 6H SUB2 O WITH A LARGE EXCESS OF I ON A H SUB2 O BATH FOR 10-12 HR. IN ALC. SOLN., ABSORBANCE MAX. ARE AT 9750, 16,250, AND 26,750 CM PRIME NEGATIVE. THESE VALUES ARE SLIGHTLY DISPLACED TOWARD THE UV REGION FOR THE COMPLEX PREPD. BY THE 1ST METHOD. NISO SUB4 3NH SUB2 CH SUB2 CH SUB2 OH IS PREPD. SIMILARLY FROM I AND NISO SUB4 7H SUB2 O, AND SHOWS MAX. AT 9500, 16,000 AND 26,750 CM PRIME NEGATIVE WHEN PREPD. FROM THE ALC. SOLN. OF NISO SUB4. ALL MAX. FOR THIS COMPLEX ARE DISPLACED BY 500 CM PRIME NEGATIVE TOWARD THE UV REGION WHEN PREPD. FROM THE DRY NI SALT. FACILITY: KIEV. TORG. EKON. INST., KIEV, USSR.

UNCLASSIFIED

DUDAR I. A.

Medicine

SO: SPKS 55015
25 January 1972

INCIDENCE OF RHEUMATISM AMONG CONSTRUCTION WORKERS ON THE KRASNOYARSK HYDRO-ELECTRIC POWER STATION

(Article by I. A. Dudar, Chair of Faculty Therapy (headed by Docent N.F. Bogdanov), Krasnoyarsk Medical Institute; Moscow, Sovetskoye Zdravookhraneniye, Moscow, No 12, 1971, submitted 3 May 1971, pp 56-59)

Rheumatism is a widespread illness with great sociohygienic significance. The different incidence in different countries is related to the distinctions of socioeconomic and cultural life, living conditions and diet of the people, and state of medical care. Investigation of the effect of environmental factors on the clinical course of rheumatism is necessary to organize effective prevention of recurrence of the disease as well as measures to rehabilitate and preserve the fitness of patients with rheumatic heart lesions with regard to employment. Of some interest is determination of the effect of climate and geographic factors on the extensiveness of rheumatism. In the opinion of I.A. Kiselevskiy (1956), A.I. Nesterov (1962), G.N. Danilovskiy (1961), and others, climate and geographic conditions are very important. At the same time, a number of investigators (N.P. Savvatimskiy, 1938; L.V. Gargusas, 1964, 1966; Yu.A. Goryayev, 1964; G.I. Orlova, 1965, and others) indicate there is no visible correlation between climate and geographic factors on incidence of this illness.

A number of authors have indicated that sociohygienic factors affect the incidence of rheumatism and that working and living conditions must be improved for such patients (A.I. Nesterov, 1959; L.V. Gargusas, 1965; M.P. Zaytseva and Ye.K. Kartashova, 1961, and others); and in many of their cases a direct relationship was established between morbidity and adverse living or industrial conditions.

Hardly anyone studied the incidence of rheumatism in Krasnoyarsk, in spite of the fact that this matter merits attention since the climate of Siberia is very rigorous. It is sharply continental in Krasnoyarsk, and is characterized by a wide amplitude of air temperature fluctuations both during the year and within a single day. The winters are cold, dry, with mild winds and clear skies. The summers are moderately warm, relatively short, with little precipitation. The summers are moderately warm, relatively short, with little precipitation.

USSR

UDC 539.3

VASIL'EV, V.V., ~~DUDCHENKO, A.A.~~ and ELPAT'EVSKIY, A.N.

"Bending of Cylindrical Shell Made of Nonlinearly-Elastic Glass-Plastic"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 228-234

Abstract: The subject cylindrical shell is produced by winding of a glass filament tape. The stress-strain diagram of the material is shown on fig. 1. The diagram is a straight line until a certain stress is reached causing cracks in the plastic between the filaments. Then the slope of the diagram changes corresponding to a lower modulus of elasticity.

The cylindrical shell is subject to a bending moment. Cylindrical coordinates are used. The section is divided into two zones having different modules of elasticity.

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USSR

VASIL'EV, V. V., et al., Prochnost' i Ustoychivost' Tonkostennykh
Aviatsionnykh Konstruktsiy, 1971, pp 228-234

Theoretical and experimental values of strain at various points
of the shell section closely agree as shown on fig. 2.

Fig. 3 shows moments and shears versus the angle between
the neutral axis and the boundary between the two zones.

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DUODAKOV, B.G.

JURIDICAL PROBLEMS IN THE USE OF ORBITS FOR ARTIFICIAL
EARTH SATELLITES

Article by Candidate of Juridical Sciences B. G. Duodakov, No-
vember, Sovetskoye Gosudarstvo i Pravo (Soviet State and Law) No. 11,
Moscow, No. 11, April 1973, pp. 71-72.

Space is becoming the arena of broad international coop-
eration. With each passing year the problems which scientists
are formulating in space research are becoming more complex and
the number of countries carrying out space research is in-
creasing. National and international programs are being developed
for the peaceful use of outer space. The number of participants in
the thirteenth session of the USSR Government is increasing. In the
A. N. Kosygin noted: "An ever-increasing number of states are
beginning to be convinced of the economic desirability of the
practical use of advances in space science and technology, es-
pecially in such fields as meteorology, navigation, space com-
munications and television. Further progress in this field can
open up still greater possibilities for all mankind."

The launching of more and more new satellites into cir-
cumterrestrial orbits and the development of space communi-
cations has put before mankind a number of serious problems:
technical, political, social and juridical. Some technical
problems give rise to juridical problems. Some technical
problems depend on the purpose of the satellite in example of these
select different angular inclinations (inclined, polar and
equatorial) and different shapes of orbits (circular and elip-
tical) in which they revolve about the earth. Among the com-
munication satellites a special place is occupied by satellites
over great distances. Broadcasting satellites, which com-
municate in the not distant future, will be able to ensure all op-
erations of communication, including direct television broadcast-
ing (DVB) -- the direct reception of television programs from
a satellite using individual home receivers.

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[III - USSR - 35]
[II - USSR]

JPRS 59819
16 August 1973

USSR

UDC: 539.3

ELPAT'EVSKIY, A. N. and ~~DUDCHENKO, A. A.~~

"Calculations of Glass-Filament Plastic Cylindrical Shells Taking Into Account Internal Cracks"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 234-249

Abstract: The paper analyzes a cylindrical pressure vessel formed by prestressed glass filament. The prestressing is achieved by winding the filament under tension around a mandrel. After the plastic is set the mandrel is removed resulting in precompressing the plastic binder. This precompression increases the internal pressure which causes the tension in the plastic binder to reach the value at which cracks originate.

The analysis is conducted in two steps. First the case of no cracks is analyzed. Then the effect of cracks is analyzed by the strain energy method.

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ELPAT'EVSKIY, A. N., and DUDCHENKO, A. A., Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 234-249

A numerical example is given. The relation between strain and internal pressure is shown on fig. 2.

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1/2 045 UNCLASSIFIED PROCESSING DATE--090CT70
TITLE--FEATURES OF THE DEFORMATION OF AN ORTHOTROPIC FIBERGLASS PLASTIC
DURING STRETCHING -U-
AUTHOR-(03)-VASILEV, V.V., DUDCHENKO, A.A., YELPATEVSKIY, A.N.
COUNTRY OF INFO--USSR
SOURCE--MEKHANIKA POLIMEROV, VOL. 6, JAN.-FEB. 1970, P. 144-147
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--FIBERGLASS, REINFORCED PLASTIC, MATERIAL DEFORMATION, POLYMER
BINDER, COMPOSITE MATERIAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1890 STEP NO--UR/0374/70/006/000/0144/0147
CIRC ACCESSION NO--AP0112870
UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112870

ABSTRACT/EXTRACT--(J) GP-0-

ABSTRACT. EXAMINATION OF THE DEFORMATION OF AN ORTHOTROPIC FIBERGLASS REINFORCED PLASTIC WITH ALLOWANCE FOR THE BREAKDOWN OF THE BINDER IN THE TRANSVERSE LAYER. ANALYSIS IS MADE OF THE DEFORMATION OF A THREE LAYER COMPOSITE SUBJECTED TO TENSION. A NUMERICAL EXAMPLE IS PRESENTED FOR ILLUSTRATING THE METHOD USED.

FACILITY: MOSKOVSKII AVIATIONNIY INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.371.33

DUDCHENKO, O. L. and KORENBERG, Ye. B.

"Signalling by a Variable Low-Frequency Current in Mines"

V sb. Shakhtn. radiosvyaz' (Mining Radio Communication--collection of works) Moscow, 1970, pp 18-26 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A239)

Translation: Computational estimates of signalling with variable low-frequency current are conducted. This type of signalling is superior to high-frequency forms of radio communication with high conductivity of the massif, where high frequency currents contend with high attenuation. Four illustrations. V. Ch.

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1/2 016
UNCLASSIFIED
PROCESSING DATE--04DEC70
TITLE--ELECTRON MICROSCOPY OF ADENOSINETRIPHOSPHATASE IN ESCHERICHIA COLI
CELLS -U-
AUTHOR--(03)-KUSHNAREV, V.M., SMIRNOVA, T.A., DUDENKOV, L.G.
COUNTRY OF INFO--USSR
SOURCE--CAN. J. MICROBIOL. 1970, 16(6), 449-53
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ESCHERICHIA COLI, ADENOSINE TRIPHOSPHATE, PHOSPHATASE, ENZYME
ACTIVITY, ELECTRON MICROSCOPY, CALCIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/B12 STEP NO--CN/0000/70/016/006/0449/0453
CIRC ACCESSION NO--AP0140257
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140257

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ATPASE ACTIVITY IN E. COLI CELLS WAS INVESTIGATED BY A COMBINATION OF ELECTRON MICROSCOPIC AND CYTOCHEM. METHODS. THE ACTIVITY IS LOCATED IN THE CYTOPLASM AND CYTOPLASMIC MEMBRANE. AFTER PROLONGED INCUBATION IN SUBSTRATE MEDIUM CONTG. CA PRIME2POSITIVE, THE INSOL. CA PHOSPHATE WAS CONCD. INTO SEVERAL AGGLOMERATES AND PROBABLY EXTRUDED FROM THE CELL. THE POSSIBLE MECHANISM OF EXTRUSION IS DISCUSSED. THE LOCATION OF ATPASE IN MEMBRANE PREPNS. WAS INVESTIGATED BY SIMILAR TECHNIQUES AND FOUND BETWEEN THE MEMBRANE SUBUNITS. THE SUBUNITS BECAME MORE REGULARLY ARRANGED AFTER INCUBATION WITH ATP. FACILITY: METSCHNIKOFF INST. VACCINES SERA, MOSCOW, USSR.

UNCLASSIFIED

Refractory Materials

USSR

UDC 666.764.32:62-405.8

DUDEROV, Yu. G., Central Scientific Research Institute of Structural Parts
Inzh V. A. Kucherenko

"Corundum-Base Porous Materials and Aluminum Phosphate Binders"

Moscow, Ogneupory, No 5, 1972, pp 46-50

Abstract: Discussed here is the production technology of highly porous corundum products made with aluminum phosphate binders. The new technology makes it possible to obtain refractories with an apparent density of 0.23 g/cm³ and a compression tensile strength of 5 kg/cm² at heat treating temperatures not exceeding 1100°C. Addition of aluminum phosphate to the material markedly raises the strength of the product following the burnout of the organic component while reducing the total shrinkage during heat treatment from 30 to 4-5%. Substitution of electrosmelted corundum for commercial alumina reduces the organic component in the mass to 18%; in this case the additional shrinkage at 1600°C of corundum specimens pre-annealed at 1000°C decreases from 0.5 to 1.0%. (3 illustrations, 3 tables, 5 bibliographic references)

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USSR

UDC 666.764:536.21

DUDEROV, YU. G., and KIRYUTIN, A. A., Moscow Engineering Physics
Institute

"Heat Conductance of Boron Nitride- and Aluminum Nitride-Base
Ceramics"

Moscow, Ogneupory, No 9, 70, pp 54-55

Abstract: Nitride-base materials are effective high-temperature electric insulators. This article presents the results of experimental studies on certain properties of ceramics comprising 50% AlN+50% BN in a B-N-Al system. The material features fairly high hardness and strength and low electroconductivity. Since aluminum is the basic component and is completely nitrided at 1000-1100°C, the specimens were synthesized at 1100°C. On subsequent testing the material was found suitable for service at 1500°C. Measurements were also made of the thermal conductance of specimens heat treated at 1500° C in a nitrogen atmosphere: such specimens exhibited higher strength and electroconductivity

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USSR

DUDEROV, YU. G., and KIRYUTIN, A. A., Ogneupory, No 9, 70, pp 54-55

(probably due to extended nitriding). The coefficient of thermal conductance of specimens annealed at 1500°C was also higher than of a material with the same composition but annealed at 1100°C. The results of the study show that both thermophysical and electrophysical characteristics of nitride-base insulation ceramics are fairly high. It is therefore recommended that such materials be annealed at 1100°C unless the requirements with respect to breakdown voltage and purity are extremely rigid and higher annealing temperatures are specified.

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USSR

UDC 669.111

GOREV, K. V., SHEVCHUK, L. A., DUDETSKAYA, L. R., GURINOVICH, V. I.

"Study of the Structure and Graphitizing Annealing of High-Purity Fe-C and Fe-C-Si Alloys"

Izv. AN BSSR, Ser. Fiz-tekhn. Nauk, No 2, Minsk, 1971, pp 49-54.

Abstract: This work presents a study of the structure and graphitization process of high-purity Fe-C and Fe-C-Si alloys. The carbon concentration in the binary alloys studied was 1.5, 2.7, and about 4.2%. In the two groups of ternary alloys studied with carbon contents of about 1.5 and 2.7%, the silicon concentration was varied from 0.1 to 1%. Annealing of pure binary specimens with 2.7 and 4.2% C result in the formation of a few very large segregations of graphite, primarily located along grain boundaries. The addition of silicon facilitated seeding and growth of graphite inclusions not only in microscopic cavities and along grain boundaries, but within the grains as well. The addition of 0.3-0.4% Si greatly facilitates graphitization.

USSR

UDC 669.111

GOREV, K. V., SHEVCHUK, L. A., DUDETSKAYA, L. R., GURINOVICH, V. I., Physico-technical Institute of the Academy of Sciences BSSR

"Investigation of the Structure and Graphitizing Annealing of Fe-C and Fe-C-Si Alloys of High Purity"

Minsk, Izvestiya Akademii nauk BSSR, Seriya fiziko-tekhnicheskikh nauk, No. 2, 1971, pp 49-54

Abstract: The structure and graphitization process of Fe-C and Fe-C-Si high purity alloys was studied. The carbon concentration in the binary alloys was 1.5, 2.7 and about 4.2% and in two groups of ternary alloys with a carbon content of about 1.5 and 2.7% the silicon content varied from 0.1 to 1%. The gravitation of samples with a carbon concentration of about 1.5% was investigated in cast samples and in samples subjected to homogenization at 980°C for 80 hours in an atmosphere of pure helium. The initial structure of these alloys in the cast state contained pearlite with separation of secondary cementite along the boundaries of the former grains of austenite and inside grains in the form of needles. In the silicon alloys, the structure was relatively finer. The homogenizing annealing of the steel in aiding the growth of austenite grains and avoiding heterogeneities in its composition cause the formation of large iceicles of

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USSR

GOREV, K. V., et al, Izvestiya Akademii nauk BSSR, Seriya fiziko-tekhnicheskikh nauk, No. 2, 1971, pp 49-54

secondary cementite in both the siliconless alloy and in alloys with silicon. The microstructure of alloys with a carbon content of 2.7% in the cast state contained converted primary austenite and ledeburite. The amount of the latter increased somewhat as the silicon concentration in the alloy increased. The binary alloy with a carbon content of 4.2% in the cast state had a ledeburite structure; in some alloys there was also observed a small amount of primary cementite in the form of needles. The study of the graphitization process of pure iron-carbon alloys obtained by the carbonization of carbonyl iron by reactor graphite in a vacuum showed that graphitization of these alloys has certain special characteristics as compared with ordinary iron alloys with carbon. Graphitization occurs in places where defects in the crystalline structure are present due to difficulty of nucleation of graphite in pure alloys. The separation of graphite in siliconless and low silicon alloys has a strongly branched form. The number of the separations is not great and they are nonuniformly distributed over a cross section of the casting. All treatments of the alloys that aid in nucleation of graphitization centers lead to a shortening of the duration of graphitization. Silicon especially helps the graphitization of alloys, especially at concentrations of more than 0.4-0.5%. The mechanism for the effect of silicon on the formation and growth of graphite inclusions in Fe-C-Si alloys is still not understood to a sufficient degree. It is only hypothesized that in the presence of silicon carbon atoms are distributed nonuniformly. Silicon apparently forms complexes with iron which drive back the carbon. Conditions are then made easier for the formation of atomic fluctuations necessary for the nucleation of graphite.

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